Images in Cardiology

A Huge Postinfarction Left-Ventricular Pseudoaneurysm: A Life-Threatening Complication of an Inferior Infarct

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A 56-year-old man presented with an inferior ST elevation myocardial infarction to a local hospital, where a drug-eluting stent for the right coronary artery was placed. He was also noted to have residual left-sided diseases and a large inferoapical left ventricular (LV) aneurysm (Video 1 , view video online). He developed a large pericardial effusion. A percutaneous drain was inserted, but there was no evidence of active bleeding. Despite medical optimization for 3 months, he continued to have severe LV dysfunction with a persistent inferoapical aneurysm and persistent mitral regurgitation. A diagnosis of LV pseudoaneurysm was made.

Transthoracic and transesophageal echocardiography showed left ventricular end-systolic and diastolic diameters of 62 mm and 55 mm, respectively, a left ventricular ejection fraction of 24%, and moderate mitral regurgitation. An LV pseudoaneurysm was noted, measuring 50.7 mm × 46.8 mm × 26.1 mm (Fig. 1A).

At surgery, we spent a considerable amount of time exposing the apex of the left ventricle because of dense adhesions to the pericardium and adjacent pleura. A tremendous amount of thrombus was removed from the inferoapical pseudoaneurysmal cavity, and the transmural scar was resected (Fig. 2). On inspection of the subvalvular apparatus, both papillary muscles appeared to be infarcted. Therefore, we replaced the mitral valve with a mechanical valve from the ventricular aspect. Once the valve was secured, we tailored a patch of bovine pericardium to exclude the interventricular septum and aneurysm cavity. The overlying ventriculotomy was then closed in a modified linear fashion, employing strips of extracellular matrix (Biodesign, Cook Medical, Stouffville, ON). We also performed coronary artery bypass grafting to a diagonal branch and the left anterior descending artery. He

Novel Teaching Point

- A large pericardial effusion post-myocardial infarction would certainly raise clinical suspicion of left ventricular pseudoaneurysm or rupture. Imaging investigations should be performed promptly to rule out a life-threatening complication.

required an intra-aortic balloon pump after chest closure. Postoperative transthoracic echocardiography showed a left ventricular ejection fraction of 32% and a well-functioning mechanical mitral valve. Neither pseudoaneurysm nor residual flow was observed (Fig. 1B). He was discharged home 7 days after surgery. He was seen 2 months after discharge and was asymptomatic.

Cardiac rupture is still a frequent cause of death following ST elevation myocardial infarction, even in the era of early reperfusion.¹ Patients who can survive the acute phase of this dreaded complication could develop postinfarction LV pseudoaneurysm. Taking a history of recent myocardial infarction is essential to determine whether to suspect a delayed life-threatening complication.

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Disclosures

The authors have no conflicts of interest to disclose.

Reference

1. Figueras J, Alcalde O, Barrabes JA, et al. Changes in hospital mortality rates in 425 patients with acute ST-elevation myocardial infarction and cardiac rupture over a 30-year period. *Circulation* 2008;118:2783-9.

Supplementary Material

To access the supplementary material accompanying this article, visit *CJC Open* at <https://www.cjopen.ca/> and at <https://doi.org/10.1016/j.cjco.2020.08.011>.

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Ethics Statement: This case report has adhered to our local research ethics board guidelines for waiver of consent.

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See page 748 for disclosure information.

Figure 1. (A) Transthoracic and transesophageal echocardiography shows left ventricular end-systolic and diastolic diameters of 62 mm and 55 mm, respectively, a left ventricular ejection fraction of 24%, and moderate mitral regurgitation. A left ventricular pseudoaneurysm is noted, measuring 50.7 mm × 46.8 mm × 26.1 mm. (B) Postoperative transthoracic echocardiography shows a left ventricular ejection fraction of 32%, and a well-functioning mechanical mitral valve. Neither pseudoaneurysm nor residual flow is observed.

Figure 2. Intraoperative photo shows the inferoapical pseudoaneurysm.